



MATERIAL SAFETY DATA SHEET

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Direx 4L®

Date Prepared: July 30, 2001

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name: Direx 4L®

HAZARDS CLASSIFICATION (0-minimal, 1-slight, 2-moderate, 3-serious, 4-severe)

HMIS: HEALTH-2 FIRE-1 REACTIVITY-0

NFPA: HEALTH-1 FIRE-1 REACTIVITY-0

MANUFACTURER NAME AND ADDRESS (For additional addresses, see Section 16.)

Griffin L.L.C.
2509 Rocky Ford Road
P.O. Box 1847
Valdosta, GA 31603-1847

EMERGENCY TELEPHONE NUMBERS (For additional numbers, see Section 16.)

Griffin L.L.C. (USA): (+1) (800) 237 1854

Prosar: (+1) (888) 324 7598

Chemtrec: (+1) (800) 424 9300

2. COMPOSITION/ INFORMATION ON INGREDIENTS

Component Name	% by Wt.	CAS#	ACGIH TLV	OSHA PEL
Diuron	40.0	330-54-1	10 mg/m ³	10 mg/m ³
Ethylene Glycol	5.0	107-21-1	125 mg/m ³	Not established

Components not precisely identified are proprietary or not hazardous.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

May cause irritation to the eyes. Slightly toxic orally and dermally. See below for route-specific details. The ACGIH time-weighted average TLV of 10 mg/m³ was established to provide sufficient margin of safety with respect to acute and chronic health effects of Diuron. The ACGIH further notes that this limit "appears appropriate based on a low order of acute and chronic toxicity and use experience since 1954".

Hazards Identification continued:



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POTENTIAL HEALTH EFFECTS

Inhalation:

Diuron - Overexposure by inhalation may cause liver enlargement, spleen and thyroid effects, red blood cell destruction, reduction of the blood's oxygen carrying capacity with cyanosis, weakness, or shortness of breath by formation of methemoglobin.

Ethylene Glycol - The low vapor pressure of this component minimizes the risk of excessive exposure to the vapors at room temperature. Exposure to vapor and mists is possible at elevated temperatures and adverse effects have been reported from exposure to mists. Inhalation of high concentrations of this component can cause irritation to the respiratory tract. May cause irritation.

Eye Irritation:

Skin Absorption:

Diuron - Slightly toxic on absorption through skin. Temporary skin swelling and redness may occur on contact. Significant skin permeation after contact appears unlikely.

Ethylene Glycol - May be absorbed through the skin, which may cause damage to kidneys and depression of central nervous system.

Ingestion:

Slightly toxic. Based on animal data, ingestion of ½ pound or more of Diuron (1 pint of formulation) could be fatal to a person.

Chronic:

Diuron - Long term exposure to low levels of Diuron is not known to cause any ill effects in humans.

Ethylene Glycol - Prolonged or repeated exposure to this component's vapors may cause damage to kidneys, liver, lungs, blood, or the central nervous system.

4. FIRST AID MEASURES

Inhalation:

Remove victim to fresh air. If not breathing, give artificial respiration preferably mouth-to-mouth. Get professional medical attention immediately.

Eye Contact:

Hold eyelids open and flush with water for 15-20 minutes until no evidence of chemical remains. Do not attempt to neutralize with chemical agents. Get professional medical attention immediately.

First Aid Measures continued:



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Skin Contact: Remove contaminated clothing and shoes. Wash with plenty of soap and water for 15-20 minutes until no evidence of chemical remains. Get professional medical attention immediately.

Ingestion: Do not induce vomiting. Drink 1 to 2 glasses of water. Do not induce vomiting or give anything by mouth to an unconscious person. Get professional medical attention immediately.

Note To Physicians: Absorption of diuron into the body may lead to the formation of methemoglobin that, in sufficient concentration, causes cyanosis. Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need be treated only by supportive measures such as a bed rest and oxygen inhalation. Thorough cleansing of the entire contaminated area of the body, including scalp and nails, is of utmost importance. If cyanosis is severe, intravenous injection of methylene blue, one milligram per kilogram of body weight, may be of value. Cyanocobalamin (Vitamin B₃), one milligram intramuscularly, may speed recovery. Intravenous fluids and blood transfusions may be indicated in very severe exposure.

5. FIRE FIGHTING MEASURES

Flash Point & Method: >200 F (TCC)
Flammable Limits: Not determined
Autoignition Temperature: Not determined

FIRE FIGHTING HAZARDS & PROCEDURES

General Hazard: Negligible fire hazard when exposed to heat or flame. Prevent human exposure to fire, smoke, fumes or products of combustion.

Extinguishing Media: Use dry chemical, carbon dioxide, water spray or foam.

Fire Fighting Equipment: Wear protective clothing and self-contained breathing apparatus.

Hazardous Combustion Products: Thermal decomposition may release toxic and/or hazardous gases.

6. ACCIDENTAL RELEASE MEASURES



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Spill or Leak Procedures:	Cover spill with absorbent material such as sweeping compound or clay. Sweep up and place in suitable (fiberboard) containers for later disposal.
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7. HANDLING AND STORAGE

General Information:	Store in a clean, dry, well ventilated area. Do not store near feed, food or within the reach of children.
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8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

PESTICIDE APPLICATORS & WORKERS

These workers must refer to the Product Label and Directions For Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170.

MANUFACTURING, COMMERCIAL BLENDING, & PACKAGING WORKERS

Ventilation:	Control enclosed spaces with adequate ventilation to prevent exceeding ACGIH TLV or OSHA PEL.
Respiratory Protection:	In enclosed spaces where the TLV or PEL may be exceeded, wear NIOSH/MSHA approved dust or mist respirator.
Eye Protection:	Wear protective eyewear to prevent contact with this substance.
Protective Clothing:	Applicators and other handlers must wear long-sleeved shirt, long pants, waterproof gloves, and shoes plus socks.

9. PHYSICAL AND CHEMICAL PROPERTIES

Vapor Pressure:	0.000001 Pa (diuron @ 25 C)
Specific Gravity:	1.48 (diuron)
Density:	9.78 lbs/gal
Solubility in Water:	42 mg/L (diuron @ 25 C)
pH:	6.5 - 7.5
Boiling Point:	Not determined
Melting Point:	Not determined
Odor:	Odorless
Color:	White
Physical State:	Viscous suspension

10. STABILITY AND REACTIVITY

General:	This material is stable under normal conditions.
Incompatible Materials:	Not determined



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Hazardous Decomposition: Thermal decomposition may release toxic and/or hazardous gases.

Hazardous Polymerization: Material is not known to polymerize.

11. TOXICOLOGICAL INFORMATION

ACUTE (DIURON)

Inhalation: Acute inhalation $LC_{50} > 5$ mg/L (4 hour - rats).
Eye Irritation: Mildly irritating to the eyes.
Skin Irritation: Irritating to the skin.
Skin Absorption: Acute dermal $LD_{50} > 2,000$ mg/kg (rabbits).
Ingestion: Acute Oral $LD_{50} = 3400$ mg/kg (rats).

12. ECOLOGICAL INFORMATION

For detailed ecological information, write to the USA address listed in Section 1 of this Material Safety Data Sheet or call 912/242-8635 and ask for Regulatory Affairs.

13. DISPOSAL CONSIDERATIONS

Comply with appropriate disposal regulations. Landfill solids at permitted sites. Use registered transporters.

14. TRANSPORT INFORMATION

Packaging < 30 gallons:

Department of Transportation (DOT): Not Regulated
International Air Transport Association (IATA): Not Regulated
International Maritime Organization (IMO): Not Regulated

Packaging > 30 gallons:

Department of Transportation (DOT) / International Air Transport Association (IATA) / International Maritime Organization (IMO):

Proper Shipping Name: RQ, Environmentally Hazardous Substance, Liquid, N.O.S. (40% diuron)
Class: 9
Identification Number: UN 3082
Packing Group: III
RQ: 100 pounds (diuron)

15. REGULATORY INFORMATION

OSHA: This product is considered hazardous under the OSHA Hazardous Communication Standard (29 CFR §1910.1200).



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TSCA:	All product components are on the TSCA Chemical Inventory.
CERCLA:	Releases of this material (Diuron : RQ = 100 pounds; Ethylene glycol: RQ = 1 pound) to air, land, or water are reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to the state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304 and 40 CFR §302.
RCRA:	When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR §261.33.
SARA TITLE III	
302:	Not listed
311/312 Hazard Categories:	This product has been reviewed according to the EPA "Hazard Categories" and is categorized as an acute and chronic health hazard.
313 Reportable Ingredients:	This product contains diuron and ethylene glycol which are listed in Section 313 above de minimis concentrations (40 CFR §372).

16. OTHER INFORMATION

GRIFFIN L.L.C. ADDRESSES AND TELEPHONE NUMBERS:

Griffin (Europe) S.A.	Griffin FE (Malaysia) S/B	Griffin do Brazil
c/o Minervastraat 8	P.O. Box 6506	Av. Selma Parada, 201
B-1930 Zaventem	18 Jalan Persiaran Barat	Galeria Office Park, Bloco II, Salas 211/234
Belgium	46050 Petaling Jaya	13091-901 Campinas-SP
	Malaysia	
011 32 2 720 6644	011 60 3 7957 4773	011 55 19 3 207 0100
Griffin L.L.C. Guangzhou	Griffin Australia PTY Ltd.	Griffin de Colombia S.A.
726 Garden Tower	18 Manning Street	Bogota Office
368 HuanShi Dong Road	Milton QLD 4064	Calle 114 #9-01 Torre A Piso 14
Guangzhou China 510064	Australia	Bogota, Colombia
011 86 20 8387 2869	011 61 7 3369 5400	011 57 1 629 2383/2202
Griffin De Mexico, S. De R.L. De C.V.		
Av. Vallarta No. 6503	Piso 10-B	
Col. Ciudad Granja		
Zapopan, Jalisco C.cp. 45010		
011 523 1100-850, 859, 847, 853		

REVISION SUMMARY

This Material Safety Data Sheet replaces the one dated March 13, 2000 and has been revised using the standard Griffin ANSI Z400.1 compliant format. Revisions have been made in section 1.



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Direx 4L® is a registered trademark of Griffin Corporation.

The information in this Material Safety Data Sheet relates to this specific material. It may not be valid for this material if used in combination with any other materials or in any process. It is the users' responsibility to satisfy themselves as to the suitability and completeness of this information for their own particular use.